



# Operation and Maintenance of CAFO Production Facilities

Presented by  
Water Resources Engineers of the  
DNR Agricultural Runoff Program

CAFO Workshops  
February 2015

# Introduction

- CAFO operators are required by NR 243.17 to operate and maintain facilities according to their operation and maintenance plan.
- Operation and Maintenance plan requirements are described in the appropriate NRCS Standard.
- Facilities and systems are to be operated and maintained so as to not create a surface water discharge or exceed groundwater quality standards.
- Inadequate maintenance could lead to an evaluation being required and possible subsequent reconstruction.

# Types of Facilities Covered

- Waste Storage
- Feed Storage and Runoff Collection
- Vegetated Treatment Areas
- Waste Conveyance

# Concrete Liners

- May exist for a lagoon, tank, manure stacking pad, processing building, feed storage or animal lot.
  - Cracks? Repair with caulking or sawcutting and grouting depending on severity.
  - Slabs out of alignment? May need removal and replacement.
  - Surface spalled (deteriorated)? May need repair or replacement.



**Concrete Liner Crack**



**Core through a concrete crack**

# Clay/In-Place Earth Liners

- Scour protection?
  - Embankments may be scoured out at pipe outfalls. Replenish liner material and place concrete splash pad.
  - If sand bedding is used, scraping or scooping equipment may have removed liner material. May need to line with concrete and/or replenish liner material.
  - Clay/earth may be lost due to agitation. May need concrete liner or replace liner material.
  - Steep inside embankment walls are a common sign that liner material has been lost from the lower portion.
  - On the inside of the embankment, above the manure level, can you see clay? If not, that's a problem.





**No Scour Protection**





**In place earth liner with not enough fines.**

# Feed Storage and Runoff Collection

- Cracks in bunker walls and floor slabs allowing uncollected leakage.
- Non-functioning conveyance to collection (poorly sloped concrete gutters/curbs, blocked perimeter tile, etc.)
- Piled feed or snowbanks blocking flow to collection system.
- Malfunctioning pump systems (freezing, thawing, programmable timers, manual switches, etc.).
- Clogged collection tank grates.



**Feed Bunker Leakage**

# Vegetated Treatment Areas (VTA)

- Spreader bar malfunctioning (settling, clogging, pros and cons of gravel spreaders vs. concrete curb w/slots).
- VTA problems – Gullyng, poorly vegetated, burned out vegetation.
- Gravel spreaders – need for regrading and cleaning.



# VTA Concentrated Flow



# Waste Conveyance

- Clogging of pipelines – cleaning out with pigs, flushing etc. Do not exceed rated capacity of pipe. Need for cleanouts.
- Monitor pressure while operating pressurized pipelines. Do not exceed working pressure – 72% of pipeline rated capacity. Also monitor for pressure drops – sign of leakage.
- Visually inspect visible joints for loosening/leaks.
- Severe service pipelines, recommend regular pressure testing per NRCS Spec. 634.



# Questions / Discussion